EXHIBIT A

One Shot Process

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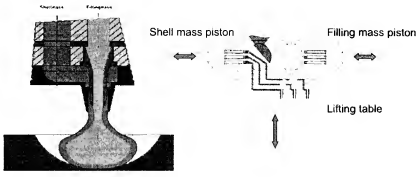
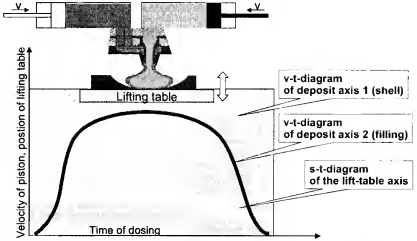
One shot process



Movement of pistons and lifting table allows to form product in one shot
Product properties of shell and filling mass are key for one shot

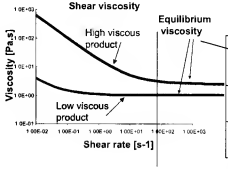
Example of dosing profile

Typical ONE SHOT- curves



Range of Viscosities applied for Numerical Simulation

Different type of flow functions used for shell and for center filling



	η_∞ Filling	η_∞ Shell	Viscosity Ratio Filling to Shell
Case 1	1 Pa.s	2.5 Pa.s	0.4
Case 2	2.5 Pa.s	1 Pa.s	2.5

Numerical Simulations should reveal differences by testing extremes
- high viscous shell or filling – low viscous filling or shell

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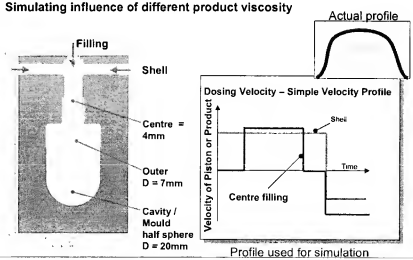
Modelling of One Shot Process

Simulating influence of different product viscosity



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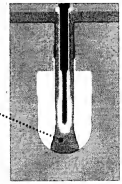
Effects seen in Numerical Simulation

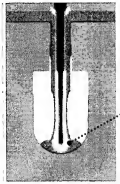
Comparison of case 1 and 2 - Start of dosing

Case 1
Shell high viscous
Filling low viscous / Ratio < 1



Shell is okay and not displaced by centre filling

Case 2
Shell low viscous
Filling high viscous / Ratio > 1



Already in the beginning shell is displaced by the centre filling

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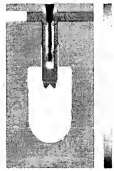
Case 1
Shell high viscous
Filling low viscous / Ratio < 1

Case 2
Shell low viscous
Filling high viscous / Ratio > 1



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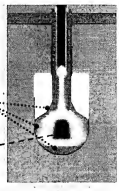
Effects seen in Numerical Simulation

Comparison of case 1 and 2 — End of dosing after 1200ms

Case 1: **Shell high viscous**
Filling low viscous / Ratio < 1

Case 2: **Shell low viscous**
Filling high viscous / Ratio > 1



Homogeneous shell thickness

Filling still in the centre

Inhomogeneous shell thickness

Filling presses through shell

Red = shell, **Blue = filling**, all other colours show different degrees of mixture of both

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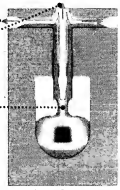
Effects seen in Numerical Simulation

End of filling, pull back of product after 1700ms

Case 1: **Shell high viscous**
Filling low viscous / Ratio < 1

Case 2: **Shell low viscous**
Filling high viscous / Ratio > 1



Pull back of product in order to disrupt flow

Formation of a „neck" because of high viscous shell – stronger pull back required

Good disruption, homogeneous distribution of product because of low viscous shell

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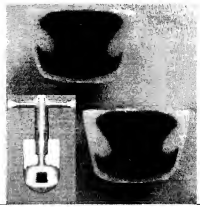
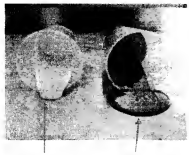
Effects seen in practice (Case 1)

Shell viscous

Filling low viscous





Shell mass *Filling mass*

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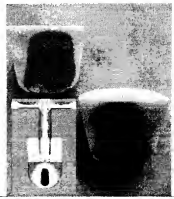
Effects seen in practice (Case 2)

Shell low viscous

Filling high viscous



Shell mass *Filling mass*

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Effects seen in practice

Shell and filling have nearly the same viscosity

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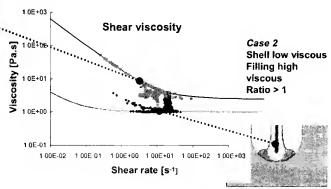
Range of Shear Rates and Viscosities
Beginning of dosing

Case 1
Shell high viscous / Filling low viscous - Ratio < 1



Case 2
Shell low viscous
Filling high viscous
Ratio > 1

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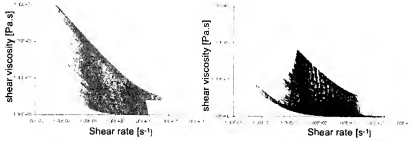
Range of shear rates during dosing process

Case 1
Shell high viscous
Filling low viscous / Ratio < 1

Case 2
Shell low viscous
Filling high viscous / Ratio > 1



Most important for process is flow behavior in the low shear rate domain, i.e. < 50 1/s

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Conclusion of these Results & Future aspects

- Viscosity of products is key for One shot process
- Based on numerical simulation and coupling with physical data (viscosity curves) one shot process can be modeled
- Modelling allows to predict if the process will deliver a „good" or "bad" product
- Modelling will allow to simplify adjustments of the One shot process
- Modelling will allow to optimize the One shot process according to the needs

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